

Attorney Docket No. 5051.338CT

Application No. 09/963,340

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IN THE CLAIMS

Please amend the claims as follows. This listing of claims replaces all prior versions.

1. (Currently Amended) An isolated ~~DNA molecule comprising a sequence selected from the group consisting of:~~
(a) ~~SEQ ID NO:1;~~
(b) ~~DNA sequences which encode an enzyme having SEQ ID NO:2;~~
(c) ~~DNA sequences which~~ nucleic acid that hybridizes to isolated DNA of (a) or (b) above and which encode a quinolate phosphoribosyl transferase enzyme; and
(d) ~~DNA sequences which differ from the DNA of (a), (b) or (c) above due to the degeneracy of the genetic code.~~ SEQ ID NO:1 or a complement thereof under a wash stringency of 0.3M NaCl, 0.03M sodium citrate, and 0.1% SDS at 60° to 70°C, wherein said nucleic acid is greater than or equal to 30 consecutive nucleotides of SEQ ID NO:1.
2. (Currently Amended) A DNA nucleic acid construct comprising an expression cassette, which construct comprises, in the 5' to 3' direction, a promoter operable in a plant cell and a DNA nucleic acid segment according to claim 1 positioned downstream from said promoter and operatively associated therewith.
3. (Currently Amended) A DNA nucleic acid construct comprising an expression cassette, which construct comprises, in the 5' to 3' direction, a plant promoter and a DNA nucleic acid segment according to claim 1 positioned downstream from said promoter and operatively associated therewith, said DNA nucleic acid segment in antisense orientation.
- 4-11. (Canceled).
12. (Currently Amended) A plant cell ~~containing~~ comprising a DNA nucleic acid construct according to claim 2, ~~3, 4 or 5~~ or 3.
13. (Currently Amended) A transgenic tobacco plant comprising the plant cells according to cell of claim 12.
- 14-15. (Canceled)
16. (Currently Amended) A method of making a transgenic tobacco plant cell having with reduced quinolate phosphoribosyl transferase (QPRTase) expression, said method comprising:
providing a tobacco plant cell; of a type known to express quinolate phosphoribosyl transferase;
providing an exogenous DNA construct, which construct comprises, in the 5' to 3' direction, a promoter operable in a plant cell and DNA comprising a portion of a sequence encoding quinolate phosphoribosyl transferase mRNA, said DNA operably associated with said promoter the nucleic acid construct of Claim 2; and
transforming said plant cell with said DNA construct to transferring said nucleic acid construct to said tobacco plant cell so as to produce a transformed tobacco plant cells, said plant cell having with
reduced expression of QPRTase as compared to an untransformed tobacco plant cell.
17. (Currently Amended) The method of claim 16, wherein said DNA nucleic acid ~~comprising a~~

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orientation.

18. (Currently Amended) The method of claim 16, wherein said DNA nucleic acid comprising a portion of a sequence encoding quinolate phosphoribosyl transferase mRNA is in sense orientation.

19. (Currently Amended) The method of claim 16, wherein said tobacco plant cell is Nicotiana tabacum a Burley variety.

20-25. (Canceled).

26. (Currently Amended) A method of producing transgenic tobacco seeds, comprising collecting seed from a the transgenic tobacco plant produced by the method of claim 32 13 or 31 or a progeny thereof.

27-30. (Canceled).

31. (Currently Amended) A reduced nicotine transgenic tobacco plant of the species Nicotiana having reduced quinolate phosphoribosyl transferase (QPRase) expression relative to a non-transformed control plant, said transgenic plant comprising transgenic plant cells containing comprising:
an exogenous DNA nucleic acid construct comprising, in the 5' to 3' direction, a promoter operable in said plant cell and DNA a nucleic acid comprising a segment of a DNA sequence that encodes a plant quinolate phosphoribosyl transferase mRNA, said DNA that hybridizes to SEQ ID NO:1 under a wash stringency of 0.3M NaCl, 0.03M sodium citrate, and 0.1% SDS at 60° to 70°C and operably associated with said promoter;
wherein said tobacco plant exhibiting reduced QPRase expression has a reduced amount of nicotine as compared to a non-transformed control plant.

32. (Currently Amended) The method of claim 31, wherein said segment of DNA nucleic acid construct comprising comprises a segment of a DNA nucleic acid sequence encoding quinolate phosphoribosyl transferase mRNA that hybridizes to SEQ ID NO:1 and said nucleic acid is in antisense orientation.

33. (Currently Amended) The method of claim 31, wherein said segment of DNA comprising nucleic acid construct comprises a segment of a DNA nucleic acid sequence encoding quinolate phosphoribosyl transferase mRNA that hybridizes to SEQ ID NO:1 and said nucleic acid is in sense orientation.

34-42. (Canceled).

43. (Currently Amended) A transgenic plant of the species Nicotiana having reduced quinolate phosphoribosyl transferase (QPRase) expression relative to a non-transformed control plant, wherein said transgenic plant is a progeny of a plant according to claim 13 or 31.

44. (Currently Amended) Seeds of a transgenic A seed of a tobacco plant of the species Nicotiana having reduced quinolate phosphoribosyl transferase (QPRase) expression relative to a non-transformed control plant, wherein said transgenic plant is a plant according to claim 13, 31 or 43, or a progeny thereof.

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45. (Currently Amended) A crop comprising a plurality of plants according to claim 13, 31 or 43, or a progeny thereof, planted together in an agricultural field.

46-56. (Canceled).

57. (Currently Amended) A method of producing a reduced nicotine tobacco plant having decreased levels of nicotine in leaves of said tobacco plant, said method comprising:

growing a tobacco plant, or progeny plants thereof, wherein said plant comprises cells containing a DNA construct comprising a transcriptional initiation region functional in said plant and an exogenous DNA sequence operably joined to said transcriptional initiation region, wherein a transcribed strand of said DNA sequence is complementary to endogenous quinolate phosphoribosyl transferase messenger RNA in said cells

providing a tobacco plant cell;

providing the isolated nucleic acid of claim 1;

transferring the isolated nucleic acid of claim 1 to said tobacco plant cell so as to obtain a transformed tobacco plant cell, wherein said transformed tobacco plant cell has a reduced expression of a quinolate phosphoribosyl transferase gene as compared to a non-transformed tobacco plant cell;

and

regenerating the transformed tobacco plant cell into a reduced nicotine tobacco plant.

58-60. (Canceled).

61. (Currently Amended) The method according to claim 57, wherein said exogenous DNA isolated nucleic acid sequence comprises the quinolate phosphoribosyl transferase encoding sequence of SEQ ID NO:1 of claim 1 is in antisense orientation.

62. (Currently Amended) The method according to claim 57, wherein said exogenous DNA isolated nucleic acid sequence comprises a quinolate phosphoribosyl transferase encoding sequence selected from the DNA sequences of claim 1, in antisense orientation is in sense orientation.

63-93. (Canceled).

94. (New) An isolated nucleic acid comprising at least about 30 consecutive nucleotides of the nucleotide sequence of SEQ ID NO:1.

95. (New) The nucleic acid of claim 94, comprising at least about 50 consecutive nucleotides of the nucleotide sequence of SEQ ID NO:1.

96. (New) The nucleic acid of claim 94, comprising at least about 75 consecutive nucleotides of the nucleotide sequence of SEQ ID NO:1.

97. (New) The nucleic acid of claim 94, comprising at least about 100 consecutive nucleotides of the nucleotide sequence of SEQ ID NO:1.

98. (New) The nucleic acid of claim 94, comprising at least about 125 consecutive nucleotides of the nucleotide sequence of SEQ ID NO:1.

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99. (New) The nucleic acid of claim 94, comprising at least about 150 consecutive nucleotides of the nucleotide sequence of SEQ ID NO:1.
100. (New) The nucleic acid of claim 94, comprising at least about 200 consecutive nucleotides of the nucleotide sequence of SEQ ID NO:1.
101. (New) The nucleic acid of Claim 94, wherein the nucleic acid is in sense orientation.
102. (New) The nucleic acid of Claim 94, wherein the nucleic acid is in antisense orientation.
103. (New) The nucleic acid of Claim 94, wherein the nucleic acid is DNA.
104. (New) The nucleic acid of Claim 94, wherein the nucleic acid is RNA.
105. (New) A vector comprising the nucleic acid of Claim 94.
106. (New) An isolated cell comprising the vector of Claim 105.
107. (New) The nucleic acid of Claim 94, further comprising a detectable moiety.